

ABSTRACT

A dosing pump for a liquid additive in fuel of a heavy fuel engine includes a piston, a cylinder, and a high resolution linear actuator, including a motor driven by a controller, for moving the piston axially in the cylinder. The pump includes a manifold, and a low friction dish-shaped seal having a peripheral portion forming a seal between the cylinder and the manifold in a fully extended position of the piston. The dish-shaped seal includes a top portion attached to the piston that moves with the piston such that the top portion of the seal is compressed against the manifold in the fully extended position. The shape of the seal minimizes non-linearity of the volume dosed as a function of movement of the piston, and the controller drives the motor so as to remove a remaining non-linearity of the volume dosed as a function of movement of the piston.